

Amendments to the claims:

This listing of claims will replace all prior versions and listings of Claims in the Application:

Listing of Claims:

- 1 1. (Currently Amended) A method of treating a pathogen within an oral cavity, the method
2 comprising:
 - 3 a. testing for the presence of one or more pathogens within the oral cavity with a
4 culture;
 - 5 b. selecting pulsed laser light with a wave length corresponding to an absorption
6 spectrum of the pathogen; and
 - 7 c. irradiating target tissue within the oral cavity with the pulsed laser light having an
8 energy of 10 Joules/cm² or greater per pulse, wherein the pulsed laser light
9 penetrates into the target tissue to a distance of 1.0 mm or greater and eradicates at
10 least a portion of the pathogen within the target tissue.
- 1 2. (Original) The method of claim 1, wherein the pulsed laser light comprises a wavelength
2 in a range of 580 to 1800 nanometers.
- 1 3. (Original) The method of claim 1, wherein the target tissue is selected from the group
2 consisting of hard periodontal tissue and soft periodontal tissue.
- 1 4. (Original) The method of claim 2, wherein the target tissue corresponds to a volume of
2 soft periodontal tissue.
- 1 5. (Previously Presented) The method of claim 4, wherein the soft periodontal tissue
2 corresponds to soft periodontal tissue is within a periodontal pocket.
- 1 6. (Original) The method of claim 1, wherein the target tissue is irradiated with the pulsed
2 laser light through an optical fiber.

- 1 7. (Previously Presented) The method of claim 6, wherein the optical fiber is placed within a
2 periodontal pocket containing the target tissue.
- 1 8. (Original) The method of claim 6, wherein the optical fiber has a fiber diameter in a range
2 of 0.05 to 3.0 mm.
- 1 9. (Original) The method of claim 1, wherein the target tissue is irradiated with a fluence of
2 the pulsed laser light that is 350 Joule/cm² or greater.
- 1 10. (Previously Presented) The method of claim 1, wherein an area of the target tissue is
2 irradiated with 2 Joules or more of pulsed laser light.
- 1 11. (Previously Presented) The method of claim 1, wherein an area of target tissue is
2 irradiated with the pulsed laser light for less than 1.0 second.
- 1 12. (Previously Presented) The method of claim 3, further comprising debriding of the target
2 tissue prior to the step of irradiating target tissue.
- 1 13. (Original) The method of claim 1, wherein the one or more pathogens include a
2 pigmented gram (-) anaerobe.
- 1 14. (Previously Presented) The method of claim 13, wherein the pigmented gram (-) anaerobe
2 is selected from the group consisting of phorphyromonas gingivalis (*Pg*) and prevotella
3 intermedia (*Pi*).
- 1 15. (Previously Presented) The method of claim 1, wherein one or more pathogens include a
2 pigmented fungus.
- 1 16. (Original) The method of claim 15, wherein the pigmented fungus is a fungus selected
2 from the group consisting of Histoplasma and Aspergillus Niger.
- 1 17. (Original) The method of claim 1, further comprising staining a bacteria.

- 1 18. (Previously Presented) The method of claim 1, wherein a substantial portion of the one or
2 more pathogens is eradicated.
- 1 19. (Canceled).
- 1 20. (Previously Presented) A method of treating a periodontal pocket, the method
2 comprising:
3 a. generating a sequence of laser pulses at an absorption wavelength; and
4 b. directing the laser pulses to a portion of periodontal tissue outside of the
5 periodontal pocket, wherein the laser pulses penetrate through a volume of the
6 periodontal tissue and eradicates bacteria within the periodontal pocket.
- 1 21. (Previously Presented) The method of claim 20, wherein the portion of periodontal tissue
2 is selected from the group containing of dentin, cementum, bone and gum tissue.
- 1 22. (Canceled).
- 1 23. (Currently Amended) The method of claim 21, wherein the laser pulses penetrate through
2 the outer portion of periodontal tissue by a distance of 1.0 mm or more.
- 1 24. (Original) The method of claim 20, wherein the laser pulses are generated with a
2 Nd:YAG laser.
- 1 25. (Original) The method of claim 20, wherein the laser pluses have energy concentrations
2 of 17 Joules/cm² per pulse or greater.
- 1 26. (Previously Presented) The method of claim 20, wherein the laser pulses are directed to
2 the portion of periodontal tissue from an optical fiber.
- 1 27. (Original) The method of claim 26, wherein the optical fiber has a fiber diameter in a
2 range of 0.5 to 3.0 mm.

- 1 28. (Original) The method of claim 20, wherein the bacteria is a pigmented gram (-)
2 anaerobe.
- 1 29. (Previously Presented) The method of claim 20, wherein the pigmented gram (-) anaerobe
2 is selected from the group consisting of phorphyromonas gingivalis (*Pg*), and prevotella
3 intermedia (*Pi*) and a pigment fungi.
- 1 30. (Previously Presented) The method of claim 20, wherein directing the laser pulses to the
2 portion of periodontal tissue also eradicates a portion of a pigmented fungus within the
3 periodontal tissue.
- 1 31. (Original) The method of claim 30, wherein the pigmented fungus is a fungus selected
2 from the group consisting of Histoplasma and Aspergillus Niger.
- 1 32. (Original) The method of claim 20, further comprising applying a staining agent within
2 the periodontal pocket, wherein the staining agent stains for the presence of living
3 bacteria.
- 1 Claims 33-42 (Canceled).
- 1 43. (New) A method of treating a pathogen within an oral cavity, the method comprising:
2 a. selecting pulsed laser light with a wave length corresponding to an absorption
3 spectrum of the pathogen; and
4 b. irradiating target tissue within the oral cavity with the pulsed laser light having an
5 energy of 10 Joules/cm² or greater per pulse, wherein the pulsed laser light
6 penetrates into the target tissue to a distance of 1.0 mm or greater and eradicates at
7 least a portion of the pathogen within the target tissue.
- 1 44. (New) The method of Claim 43, further comprising testing for the presence of the
2 pathogen within the oral cavity.